

### ABSTRACT OF THE DISCLOSURE

A hetero field effect transistor according to the present invention comprises an InP substrate, a channel layer provided on the InP substrate with a buffer layer disposed between the InP substrate and the channel layer, a spacer layer constituted by a semiconductor having a band gap larger than that of the channel layer formed to hetero-join to the channel layer, and a carrier supply layer formed to be adjacent to the spacer layer, wherein the channel layer comprises a predetermined semiconductor layer constituted by a compound semiconductor represented by a formula  $\text{Ga}_x\text{In}_{1-x}\text{N}_y\text{A}_{1-y}$  in which A is As or Sb, composition x satisfies  $0 \leq x \leq 0.2$ , and composition y satisfies  $0.03 \leq y \leq 0.10$ .